Access DB# 99097

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: WILLIAM G. WRIGHT SR. Examiner #: 62100 Date: 7/16/03
Art Unit: 0754 Phone Number 305-7792 Serial Number: 09/980,711
Mail Box and Bldg/Room Location: 93-9A15 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Process for producing a lithium transition metal sulphide
Inventors (please provide full names): ANDREW RITCHIE PETER BOYLE

Earliest Priority Filing Date: 06/17/1999 UK 9914044.0

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Claims and Spec. attached
WGW SR. 7/16/03

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Searcher: EL
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed: 7-18-03
Searcher Prep & Review Time:
Clerical Prep Time:
Online Time:

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#) (3)
Bibliographic (and)
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN $177.36
Dialog
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

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FILE 'REGISTRY' ENTERED AT 09:50:31 ON 18 JUL 2003
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     FILE 'REGISTRY' ENTERED AT 08:58:37 ON 18 JUL 2003
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L4          1976 S (T1 OR T2 OR T3)/PG (L) S/ELS (L) 2/ELC.SUB
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L5              1 S E3


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L8           499 S L3
L9         56486 S L4
L10            1 S L6 AND L7 AND L8 AND L9
L11       110738 S L5
L12            3 S L11 AND L7 AND L8 AND L9
L13           25 S L6 AND L7
L14           83 S L2/P
L15            3 S L13 AND L14
L16            7 S L13 AND (L8 OR L9)


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L17         4520 S RITCHIE ?/AU
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L19            9 S L17 AND L18


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L19 4 RN

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L21            5 S L20 AND L3

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L23            1 S L22 AND L6
L24          759 S L9 AND L6
L25          147 S L3/P
L26           56 S L22 AND L25
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L28            1 S L25 AND L6
L29           25 S L6 AND L7
L30            2 S L6 AND L8
L31          759 S L6 AND L9
L32            7 S L29 AND L9
L33            7 S L29 AND L31
L34           11 S L10 OR L12 OR L16 OR L23 OR L27 OR L28 OR L32 OR L33

      FILE 'REGISTRY' ENTERED AT 09:50:31 ON 18 JUL 2003

=> file hca
FILE 'HCA' ENTERED AT 09:50:52 ON 18 JUL 2003
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=> d l34 1-11 ibib abs hitstr hitind

L34  ANSWER 1 OF 11  HCA  COPYRIGHT 2003 ACS
ACCESSION NUMBER:        134:59129  HCA
TITLE:                   Process for producing a lithium transition metal
                         sulphide
INVENTOR(S):             Ritchie, Andrew Grahame; Bowles, Peter George
PATENT ASSIGNEE(S):      Secretary of State for Defence, UK
SOURCE:                  PCT Int. Appl., 9 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

      PATENT NO.          KIND  DATE          APPLICATION NO.   DATE
      ------------------  ----  --------      ----------------  --------
      WO 2000078673       A1    20001228      WO 2000-GB2179    20000605
          W:  AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR,
              CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
              ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
              LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,
              RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
              UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
          RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,
              CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,
              BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
      GB 2351075          A1    20001220      GB 1999-14041     19990617
      GB 2365858          A1    20020227      GB 2001-28324     20000605
      GB 2365858          B2    20021231
      EP 1187790          A1    20020320      EP 2000-937049    20000605
          R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
              PT, IE, SI, LT, LV, FI, RO
      JP 2003502265       T2    20030121      JP 2001-504848    20000605
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PRIORITY APPLN. INFO.: GB 1999-14041 A 19990617
WO 2000-GB2179 W 20000605

AB A process for the prodn. of a lithium transition metal sulfide such as lithium iron sulfide, the process comprising reacting a transition metal sulfide with lithium sulfide in a solvent comprising **molten sulfur.** Lithium transition metal sulfides obtained using this process are also claimed and are useful in the prodn. of electrodes, in particular for rechargeable lithium batteries.

IT **12680-08-9P**, Lithium titanium sulfide **37367-96-7P**, Lithium molybdenum sulfide **59217-78-6P**, Iron lithium sulfide (FeLi2S2) **79176-50-4P**, Iron lithium sulfide (Fe2Li3S4) **80341-49-7P**, Iron lithium sulfide
(process for producing lithium transition metal sulfide)

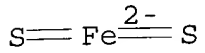
RN 12680-08-9 HCA
CN Lithium titanium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ti	x	7440-32-6
Li	x	7439-93-2

RN 37367-96-7 HCA
CN Lithium molybdenum sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mo	x	7439-98-7
Li	x	7439-93-2

RN 59217-78-6 HCA
CN Ferrate(2-), dithioxo-, dilithium (9CI) (CA INDEX NAME)



2 Li^+

RN 79176-50-4 HCA
CN Iron lithium sulfide (Fe2Li3S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9

Li	3	7439-93-2
Fe	2	7439-89-6

RN 80341-49-7 HCA
CN Iron lithium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Li	x	7439-93-2
Fe	x	7439-89-6

IC ICM C01B017-22
ICS H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49
IT **12680-08-9P**, Lithium titanium sulfide **37367-96-7P**, Lithium molybdenum sulfide **59217-78-6P**, Iron lithium sulfide (FeLi2S2) **79176-50-4P**, Iron lithium sulfide (Fe2Li3S4) **80341-49-7P**, Iron lithium sulfide
(process for producing lithium transition metal sulfide)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 124:150594 HCA
TITLE: Process and catalysts for removing **sulfur** compounds from **fluid** streams, especially sour natural gas, to form sulfur
INVENTOR(S): Gunning, Harry E.
PATENT ASSIGNEE(S): Can.
SOURCE: Can., 50 pp.
CODEN: CAXXA4
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 1337069	A1	19950919	CA 1989-614854	19890929

PRIORITY APPLN. INFO.: CA 1989-614854 19890929
AB The process comprises (1) contacting the gas at a temp. below the vaporization point of S with a supported catalyst comprising a mixt. of .gtoreq.2 salts, (a) a sulfide or selenide of .gtoreq.1 of amphoteric or polyvalent metals, (b) an alkali metal sulfide or selenide, and, immobilized within said support, .gtoreq.1 components capable of providing or generating reactive O capable of reacting with non-S component of the compd. to form S, (2) heating the

catalyst in the presence of a sweep gas to drive off elemental S as vapor, and (3) regenerating the catalyst with SO2 or N peroxide. The natural gas is sweetened by providing a SO2-contg. gas, exposing the gas to the catalyst to form S, and purging the catalyst from S with a sweep gas.

IT **11113-75-0**, Nickel sulfide **11130-24-8**, Vanadium sulfide **12136-58-2**, Lithium sulfide **12612-50-9**, Molybdenum sulfide **12687-82-0**, Manganese sulfide
(process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)

RN 11113-75-0 HCA
CN Nickel sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ni	x	7440-02-0

RN 11130-24-8 HCA
CN Vanadium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
V	x	7440-62-2

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li— S— Li

RN 12612-50-9 HCA
CN Molybdenum sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mo	x	7439-98-7

RN 12687-82-0 HCA
CN Manganese sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mn	x	7439-96-5

IC ICM C01B017-04
ICS B01D053-36
CC 51-5 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
IT Alkali metal sulfides
Selenides
Sulfides, uses
(process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT Molecular sieves
(supports; process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT Zeolites, uses
(supports; process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT Alkali metal chalcogenides
(selenides, process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 7446-09-5, Sulfur dioxide, processes 10102-44-0, Nitrogen peroxide, processes
(oxygen source; process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 1302-81-4, Aluminum sulfide 1312-73-8, Potassium sulfide 1312-74-9, Potassium selenide 1313-82-2, Sodium sulfide, uses 1313-85-5, Sodium selenide 1314-98-3, Zinc sulfide, uses **11113-75-0**, Nickel sulfide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide **11130-24-8**, Vanadium sulfide **12136-58-2**, Lithium sulfide 12214-16-3, Cesium sulfide **12612-50-9**, Molybdenum sulfide 12653-56-4, Cobalt sulfide **12687-82-0**, Manganese sulfide 12738-87-3, Tin sulfide 31052-43-4, Rubidium selenide 31052-46-7, Cesium selenide 74749-97-6, Lithium selenide 129208-45-3, Rubidium sulfide
(process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 7704-34-9P, Sulfur, preparation
(process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 7783-06-4, Hydrogen sulfide, processes
(process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 1344-28-1, Alumina, uses 7631-86-9, Silica, uses
(supports; process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)
IT 74-82-8, Methane, uses 7727-37-9, Nitrogen, uses
(sweep gas; process and catalysts for removing **sulfur** compds. from **fluid** streams, esp. sour natural gas, to form sulfur)

L34 ANSWER 3 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 116:64117 HCA
TITLE: Copper distribution between ferrous sulfide-alkaline or -alkaline earth metal sulfide fluxes and carbon saturated iron melt
AUTHOR(S): Wang, Chao; Nagasaka, Tetsuya; Hino, Mitsutaka; Banya, Shiro
CORPORATE SOURCE: Fac. Eng., Tohoku Univ., Sendai, 980, Japan
SOURCE: ISIJ International (1991), 31(11), 1309-15
CODEN: IINTEY; ISSN: 0915-1559
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Measurements were made to study the effect of the addn. of alk. or alk. earth metal sulfide such as Li2S, K2S, MgS, CaS, SrS, or BaS to FeS on the Cu distribution ratio between FeS flux and C-satd. liq. Fe at 1673 K. Since the soly. of MgS and CaS in liq. FeS was limited, no apparent effect of MgS or CaS on the Ca distribution ratio was obsd. Similar to the effect of Na2S studied in the previous work, the addn. of Li2S, K2S, SrS, or BaS to FeS increased the Cu distribution ratio. LCu, and LCu reached a max. value at certain contents of these additives in each flux. The max. values of LCu measured in each flux were 30, 20, 22, and 19 in FeS-LiS0.5, -KS0.5, -SrS, and -BaS fluxes, resp. The **S** content in **liq**. Fe also decreased by the addn. of these sulfides to FeS.

IT **1317-37-9**, Iron sulfide (FeS)
(flux contg. alk. and alk. earth metal sulfides and, copper distribution between carbon-satd. iron melt and)
RN 1317-37-9 HCA
CN Iron sulfide (FeS) (8CI, 9CI) (CA INDEX NAME)

Fe=S

IT **12136-58-2**, Lithium sulfide (Li2S)
(flux contg. iron sulfide and, copper distribution between carbon-satd. iron melt and)
RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li-S-Li

IT **22205-45-4**, Copper sulfide (Cu2S)
(in iron sulfide-lithium sulfide flux, carbon-satd. iron melt copper distribution in relation to)
RN 22205-45-4 HCA
CN Copper sulfide (Cu2S) (8CI, 9CI) (CA INDEX NAME)

Cu-S-Cu

CC 55-1 (Ferrous Metals and Alloys)
IT **1317-37-9**, Iron sulfide (FeS)
(flux contg. alk. and alk. earth metal sulfides and, copper distribution between carbon-satd. iron melt and)
IT 1312-73-8, Potassium sulfide (K2S) 1314-96-1, Strontium sulfide (SrS) 12032-36-9, Magnesium sulfide (MgS) **12136-58-2**, Lithium sulfide (Li2S) 20548-54-3, Calcium sulfide (CaS) 21109-95-5, Barium sulfide (BaS)
(flux contg. iron sulfide and, copper distribution between carbon-satd. iron melt and)
IT **22205-45-4**, Copper sulfide (Cu2S)
(in iron sulfide-lithium sulfide flux, carbon-satd. iron melt copper distribution in relation to)

L34 ANSWER 4 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 115:33005 HCA
TITLE: Effect of alkaline and alkaline earth metal sulfide addition on the copper distribution between ferrous sulfide flux and carbon saturated liquid iron
AUTHOR(S): Wang, Chao; Nagasaka, Tetsuya; Hino, Mitsutaka; Banya, Shiro
CORPORATE SOURCE: Res. Inst. Miner. Dress. Metall., Tohoku Univ., Sendai, Japan
SOURCE: Tetsu to Hagane (1991), 77(5), 644-51
CODEN: TEHAA2; ISSN: 0021-1575
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB The effect of adding alk. or alk. earth metal sulfide such as Li2S, K2S, MgS, CaS, SrS, or BaS to FeS flux on the Cu distribution ratio between FeS flux and C-satd. liq. Fe at 1 673 K was studied. Since the soly. of MgS and CaS in liq. FeS was limited, no apparent effect of MgS or CaS on the Cu distribution ratio was obsd. Similar to the effect of Na2S, the addn. of Li2S, K2S, SrS, or BaS to FeS increased the Cu distribution ratio, which reached a max. value at certain content of these additives in each flux. The max. values of distribution ratio measured in each flux were 30, 20, 22, and 19 in FeS-LiS0.5, -KS0.5, -SrS, and -BaS fluxes, resp. The **S** content in **liq**. Fe also decreased by adding the sulfides to FeS.
IT **1317-37-9**, Iron sulfide (FeS)
(fluxes, copper distribution between carbon-satd. liq. iron and, effect of adding alk. and alk. earth metal sulfides on)
RN 1317-37-9 HCA
CN Iron sulfide (FeS) (8CI, 9CI) (CA INDEX NAME)

Fe=S

IT **12136-58-2**, Lithium sulfide (Li2S)
(in iron sulfide flux, copper distribution between carbon-satd.

liq. iron and flux in relation to)
RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li—S—Li

CC 55-1 (Ferrous Metals and Alloys)
IT **1317-37-9**, Iron sulfide (FeS)
(fluxes, copper distribution between carbon-satd. liq. iron and, effect of adding alk. and alk. earth metal sulfides on)
IT 1312-73-8, Potassium sulfide (K2S) 1314-96-1, Strontium sulfide (SrS) **12136-58-2**, Lithium sulfide (Li2S) 21109-95-5, Barium sulfide (BaS)
(in iron sulfide flux, copper distribution between carbon-satd. liq. iron and flux in relation to)

L34 ANSWER 5 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 107:220469 HCA
TITLE: Multicomponent phase diagrams for battery applications. II. Oxygen impurities in the lithium(silicon)/iron sulfide (FeS2) battery cathode
AUTHOR(S): Aselage, T. L.; Hellstrom, E. E.
CORPORATE SOURCE: Sandia Natl. Lab., Albuquerque, NM, 87185, USA
SOURCE: Journal of the Electrochemical Society (1987), 134(8A), 1932-8
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effects of Fe2O3, FeSO4, and Fe2(SO)43 impurities in the FeS2 cathode on the voltage response of the Li(Si)/FeS2 thermal battery were studied. Calcns. were made of the pertinent equil. phase relations in the Li-Fe-S-O system at 400.degree. and of the voltage of each of the 4-phase regions vs. a Li(Si) anode (44% Li). The calcns. showed that these impurities in the FeS2 cathode can all cause voltages that are higher than the steady-state voltage of the battery. The study showed that equilibrating FeS2 cathode materials that contains O impurities with a small amt. of a compd. contg. Li shifts the overall cathode compn. into one of three 4-phase regions that exhibit the steady-state battery voltage.
IT **12068-85-8**, Iron sulfide (FeS2)
(cathodes, performance of, oxygen impurity effect on, lithium-iron-sulfur-oxygen phase diagram in relation to, for lithium-silicon alloy thermal batteries)
RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

S═Fe═S

IT **12136-58-2P**, Lithium sulfide **79176-50-4P**

(formation of, in discharge of lithium-silicon alloy iron sulfide battery, oxygen impurities in cathode in relation to)

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li—S—Li

RN 79176-50-4 HCA
CN Iron lithium sulfide (Fe2Li3S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Li	3	7439-93-2
Fe	2	7439-89-6

IT **7704-34-9**, Sulfur, properties
(systems, iron-lithium-oxygen-, phase diagram of, cathode impurity in lithium-silicon alloy-iron sulfide thermal battery in relation to)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 68
IT **12068-85-8**, Iron sulfide (FeS2)
(cathodes, performance of, oxygen impurity effect on, lithium-iron-sulfur-oxygen phase diagram in relation to, for lithium-silicon alloy thermal batteries)
IT 10377-48-7P, Lithium sulfate 12023-70-0P **12136-58-2P**, Lithium sulfide **79176-50-4P**
(formation of, in discharge of lithium-silicon alloy iron sulfide battery, oxygen impurities in cathode in relation to)
IT **7704-34-9**, Sulfur, properties
(systems, iron-lithium-oxygen-, phase diagram of, cathode impurity in lithium-silicon alloy-iron sulfide thermal battery in relation to)

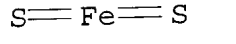
L34 ANSWER 6 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 107:163862 HCA
TITLE: Mathematical modeling of lithium(alloy), iron disulfide cells
AUTHOR(S): Bernardi, Dawn; Newman, John
CORPORATE SOURCE: Mater. Mol. Res. Div., Lawrence Berkeley Lab., Berkeley, CA, 94720, USA
SOURCE: Journal of the Electrochemical Society (1987), 134(6), 1309-18

CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Results obtained from computer programs simulating the behavior of LiAl/FeS2 and Li(Si)/FeS2 high-temp. cells employing LiCl-KCl electrolyte are presented. The thermodn., open-circuit potential of these cells as a function of state-of-discharge and neg.-to-pos. capacity ratio was investigated. A nonequil. cell model gives the effects of state-of-discharge, initial electrolyte compn., temp., and discharge c.d. on cell voltage. Reaction rate distributions are discussed. The model predicts that KCl pptn. can limit the utilization of the FeS2 electrode, usually on the lowest voltage plateau. The calcd. cell discharge behavior is compared with available exptl. data.

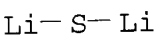
IT **12068-85-8**, Iron sulfide(FeS2)
(electrode, in cell with lithium alloy, math. modeling of)

RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

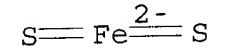


IT **12136-58-2**, Lithium sulfide (Li2S) **59217-78-6**, Iron lithium sulfide (FeLi2S2) **79176-50-4**, Iron lithium sulfide (Fe2Li3S4) **110641-97-9**, Iron lithium sulfide (Fe0.67Li2.33S2) **110642-09-6**
(molar volume of, in iron disulfide electrode in cell with lithium alloy)

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 59217-78-6 HCA
CN Ferrate(2-), dithioxo-, dilithium (9CI) (CA INDEX NAME)



RN 79176-50-4 HCA
CN Iron lithium sulfide (Fe2Li3S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9

Li	3	7439-93-2
Fe	2	7439-89-6

RN 110641-97-9 HCA
CN Iron lithium sulfide (Fe0.67Li2.33S2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	2	7704-34-9
Li	2.33	7439-93-2
Fe	0.67	7439-89-6

RN 110642-09-6 HCA
CN Iron sulfide (Fe0.88S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Fe	0.88	7439-89-6

IT **7704-34-9**, Sulfur, properties
(systems, iron-lithium-)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 68
IT **12068-85-8**, Iron sulfide(FeS2)
(electrode, in cell with lithium alloy, math. modeling of)
IT **12136-58-2**, Lithium sulfide (Li2S) **59217-78-6**, Iron lithium sulfide (FeLi2S2) **79176-50-4**, Iron lithium sulfide (Fe2Li3S4) **110641-97-9**, Iron lithium sulfide (Fe0.67Li2.33S2) **110642-09-6**
(molar volume of, in iron disulfide electrode in cell with lithium alloy)
IT **7704-34-9**, Sulfur, properties
(systems, iron-lithium-)

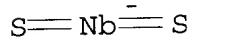
L34 ANSWER 7 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 102:196690 HCA
TITLE: Structure and superconductivity in lithium-intercalated niobium dichalcogenides
AUTHOR(S): McEwen, C. S.; St. Julien, D. J.; Edwards, P. P.; Sienko, M. J.
CORPORATE SOURCE: Baker Lab. Chem., Cornell Univ., Ithaca, NY, 14853, USA
SOURCE: Inorganic Chemistry (1985), 24(11), 1656-60

CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English

AB LixNbS2 (0 .ltoreq. x .ltoreq. 0.50) and LixNbSe2 (0 .ltoreq. x .ltoreq. 0.67) were prepd. by high-temp. reaction of Li2X (X = S, Se), Nb, and X. Structures were detd. by anal. of x-ray powder patterns with polytypism obsd. in the sulfide series. Staging and Li ordering is obsd., and crystal parameters are proposed for a 2nd staged sample, Li0.2NbSe2. In the series LixNbSe2, Tc exhibits a monotonic decrease with increasing Li content, falling to < 2 K by x = 0.25. In contrast, in the LixNbS2 series, Tc exhibits a more complicated pattern with Tc plummeting to < 2 K by x = 0.05, only to rebound to 3.7 K at x = 0.33 and then fall to < 2 K at x = 0.4.

IT **55964-37-9P 56321-19-8P**
(prepn., crystal structure and supercond. of)

RN 55964-37-9 HCA
CN Niobate(1-), dithioxo-, lithium (9CI) (CA INDEX NAME)



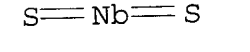
Li^+

RN 56321-19-8 HCA
CN Lithium niobium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Nb	x	7440-03-1
Li	x	7439-93-2

IT **12136-97-9**
(reaction of, with butyllithium)

RN 12136-97-9 HCA
CN Niobium sulfide (NbS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7704-34-9**, reactions
(reactions of, with niobium and lithium sulfide)

RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

IT **12136-58-2**
(reactions of, with niobium and sulfur)
RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li—S—Li

CC 78-3 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75, 76
IT 55964-36-8P **55964-37-9P 56321-19-8P**
61673-65-2P
(prepn., crystal structure and supercond. of)
IT 12034-77-4 **12136-97-9**
(reaction of, with butyllithium)
IT **7704-34-9**, reactions
(reactions of, with niobium and lithium sulfide)
IT **12136-58-2**
(reactions of, with niobium and sulfur)

L34 ANSWER 8 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 97:171222 HCA
TITLE: Electrochemical behavior of nickel, iron, and copper in a lithium chloride-potassium chloride melt in the presence of sulfur
AUTHOR(S): Demidov, A. I.; Matveev, V. A.; Morachevskii, A. G.
CORPORATE SOURCE: USSR
SOURCE: Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation) (1982), 55(7), 1674-8
CODEN: ZPKHAB; ISSN: 0044-4618
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB With regard to the use of different metals as current collectors for a S electrode, the effect was studied **melts**, LiCl-KCl-**S** current collector material in processes occurring at such an electrode. Polarization curves were plotted under potentiodynamic and pulsed galvanostatic conditions on electrodes of Ni, Fe, and Cu in LiCl-KCl **melts**, LiCl -KCl-**S** **melts** and on a S cathode, the current collector of which was prepd. from the above metals, at 673 K. The values of the std. potentials of alk. metal deposition (Li and K) on sulfides of Ni, Fe and Cu (at 673 K), calcd. on the basis of thermodn. data, allow one to propose that on the surfaces of metals immersed in LiCl-KCl-**S** **melts**, there are formed S-depleted sulfides (Ni3S2, FeS, Cu2S) and, during simultaneous contact with S and the electrolyte, a whole series of sulfides with which Li, being deposited on the cathode, interacts.
IT **1317-37-9P**
(formation of, electrolytic polarization of iron in chloride **melt** contg. **sulfur** in relation to)
RN 1317-37-9 HCA

CN Iron sulfide (FeS) (8CI, 9CI) (CA INDEX NAME)

Fe=S

IT **12035-72-2P**
(formation of, electrolytic polarization of nickel and chloride **melt** contg. **sulfur** in relation to)
RN 12035-72-2 HCA
CN Nickel sulfide (Ni3S2) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **22205-45-4P**
(formation of, in electrolytic polymn. copper in chloride **melt** contg. **sulfur** in relation to)
RN 22205-45-4 HCA
CN Copper sulfide (Cu2S) (8CI, 9CI) (CA INDEX NAME)

Cu-S-Cu

IT **12136-58-2P**
(formation of, on current collectors in chloride **melts** contg. **sulfur**)
RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li-S-Li

IT **1317-40-4 12035-51-7 12068-85-8**
16812-54-7
(reaction of, with lithium and potassium, elec. potential of)
RN 1317-40-4 HCA
CN Copper sulfide (CuS) (8CI, 9CI) (CA INDEX NAME)

Cu=S

RN 12035-51-7 HCA
CN Nickel sulfide (NiS2) (6CI, 8CI, 9CI) (CA INDEX NAME)

S=Ni=S

RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

S=Fe=S

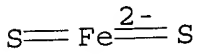
RN 16812-54-7 HCA
CN Nickel sulfide (NiS) (8CI, 9CI) (CA INDEX NAME)

Ni=S

CC 72-5 (Electrochemistry)
Section cross-reference(s): 68
ST nickel electrochem polarization chloride melt; iron electrochem polarization chloride melt; copper electrochem polarization chloride; **sulfur** chloride **melt** metal polarization; electrolytic polarization metal sulfur chloride
IT **1317-37-9P**
(formation of, electrolytic polarization of iron in chloride **melt** contg. **sulfur** in relation to)
IT **12035-72-2P**
(formation of, electrolytic polarization of nickel and chloride **melt** contg. **sulfur** in relation to)
IT **22205-45-4P**
(formation of, in electrolytic polymn. copper in chloride **melt** contg. **sulfur** in relation to)
IT 1312-73-8P **12136-58-2P**
(formation of, on current collectors in chloride **melts** contg. **sulfur**)
IT **1317-40-4 12035-51-7 12068-85-8 16812-54-7**
(reaction of, with lithium and potassium, elec. potential of)

L34 ANSWER 9 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 97:46407 HCA
TITLE: ELectrochemical behavior of iron in the presence of sulfide ions dissolved in molten lithium chloride-potassium chloride eutectic at 450.degree.C
AUTHOR(S): Santarini, G.
CORPORATE SOURCE: CEA, Fontenay-aux-Roses, 92260, Fr.
SOURCE: Electrochimica Acta (1982), 27(4), 495-510
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English
AB From electrochem. expts. and from thermodn. considerations, a potential-pS2- diagram is proposed for solid species relative to the Fe-S system in the presence of molten LiCl-KCl eutectic at 450.degree.. On the basis of this study, the following values may be adopted: Gibbs free energy of formation of the Li2FeS2 phase (from Li2S and FeS): -0.7 kcal; Gibbs free energy of formation of the LiK6Fe24S26Cl phase (from FeS, Li2S, and the LiCl-KCl eutectic): 16 kcal; soly. product of FeS: 1.5 .times. 10-12 (in the molar fraction scale); and soly. of Li2S: 5.28 .times. 10-4 (molar fraction). The exptl. results point to the existence in soln. of species other than Fe2+ and S2-.
IT **59217-78-6**
(free energy of formation of)
RN 59217-78-6 HCA

CN Ferrate(2-), dithioxo-, dilithium (9CI) (CA INDEX NAME)



2 Li^+

IT **1317-37-9 12136-58-2**
(soly. of, in lithium chloride-potassium chloride eutectic melt)
RN 1317-37-9 HCA
CN Iron sulfide (FeS) (8CI, 9CI) (CA INDEX NAME)

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

CC 72-2 (Electrochemistry)
Section cross-reference(s): 68, 69
IT Electric potential
(-sulfide ion concn. diagram, for iron-**sulfur** system in **molten** chloride eutectic)
IT **59217-78-6** 64616-08-6
(free energy of formation of)
IT **1317-37-9 12136-58-2**
(soly. of, in lithium chloride-potassium chloride eutectic melt)

L34 ANSWER 10 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 91:98995 HCA
TITLE: Anodic corrosion rate measurements in lithium chloride-potassium chloride eutectic. II. Results on nickel, molybdenum, and stainless steel
AUTHOR(S): Raleigh, D. O.; White, J. T.; Ogden, C. A.
CORPORATE SOURCE: Sci. Cent., Rockwell Int., Thousand Oaks, CA, 91360, USA
SOURCE: Journal of the Electrochemical Society (1979), 126(7), 1093-9
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The anodic dissoln. characteristics of Ni, Mo, and AISI304 were examd. in pure and Li2S-satd. LiCl-KCl eutectic melt. Mo and Ni show Tafel-type dissoln. kinetics in pure eutectic which permit ests. of long-term corrosion rates as a function of voltage. Ni

exhibits a sharp threshold potential for dissoln. in Li2S-satd. melt, forming a nonpassivating Ni3S2 layer. Comparative voltammetry and open-circuit potential measurements with Fe in this melt suggest that care may be required in using Ni as an Fe sulfide current collector. The anodic dissoln. of 304 stainless steel in Li2S-satd. melt appears to be rate limited by diffusion through a reaction layer, showing a (time)-1/2 dependence that may be applicable to long-term corrosion predictions. Mo appears to owe its excellent anodic corrosion resistance in Li2-**S**-satd. **melt** both to a chem. formed prepassive film and to a well-defined anodic passivation process. Anodic corrosion of metals should, in general, occur more readily in the Li2S-satd. melt than in pure LiCl-KCl for straight-forward thermodn. reasons.

IT **12035-72-2P**
(formation of, on nickel during anodic soln. in chloride melts satd. with lithium sulfide)

RN 12035-72-2 HCA
CN Nickel sulfide (Ni3S2) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **12136-58-2**
(molybdenum and nickel and stainless steel anodic dissoln. in lithium chloride-potassium chloride satd. with)

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li—S—Li

CC 72-4 (Electrochemistry)

IT **12035-72-2P**
(formation of, on nickel during anodic soln. in chloride melts satd. with lithium sulfide)

IT **12136-58-2**
(molybdenum and nickel and stainless steel anodic dissoln. in lithium chloride-potassium chloride satd. with)

L34 ANSWER 11 OF 11 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 78:51696 HCA
TITLE: Electrochemical generation and measurement of sulfide ion in molten lithium chloride-potassium chloride eutectic
AUTHOR(S): Liu, C. H.; Zielen, A. J.; Gruen, D. M.
CORPORATE SOURCE: Chem. Div., Argonne Natl. Lab., Argonne, IL, USA
SOURCE: Journal of the Electrochemical Society (1973), 120(1), 67-70
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

AB An electrode composed of the eutectic mixt. of NiS and Ni (1:1 mole ratio) is useful for coulometrically generating **S2**- in **molten** LiCl-KCl eutectic. A shiny Ni electrode coated with NiS functions reversibly as an electrode of the 2nd kind for S2-.

With this indicator electrode, the soly. product of NiS at 375-475.degree. was detd., and the heat of reaction for the soly. equil. NiS(s) .dblarw. Ni(II) + S2- was calcd. The soly. behavior of Li2S in the same temp. range was also investigated

IT **12136-58-2 16812-54-7**
(soly. of, in fused lithium chloride-potassium chloride eutectic)

RN 12136-58-2 HCA
CN Lithium sulfide (Li2S) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Li—S—Li

RN 16812-54-7 HCA
CN Nickel sulfide (NiS) (8CI, 9CI) (CA INDEX NAME)

Ni═S

CC 77-9 (Electrochemistry)
Section cross-reference(s): 68, 79

IT **12136-58-2 16812-54-7**
(soly. of, in fused lithium chloride-potassium chloride eutectic)

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FILE 'HCA' ENTERED AT 09:50:52 ON 18 JUL 2003
L35 9419 S L5 (L) RCT/RL
L36 6 S L25 AND L35
L37 QUE MELT? OR MOLTEN? OR FUSE# OR FUSING# OR FUSION?
L38 0 S L36 AND L37
L39 5 S L36 NOT L34

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L39 ANSWER 1 OF 5 HCA COPYRIGHT 2003 ACS
134:289374 Syntheses and Structures of LiAuS and Li3AuS2. Huang, Fu Qiang; Yang, Yuting; Flaschenriem, Christine; Ibers, James A. (Department of Chemistry, Northwestern University, Evanston, IL, 60208-3113, USA). Inorganic Chemistry, 40(6), 1397-1398 (English) 2001. CODEN: INOCAJ. ISSN: 0020-1669. Publisher: American Chemical Society.

AB The compds. LiAuS and Li3AuS2 were prepd. in a Li2S reactive flux. The cor. crystal structure of LiAuS is reported as well as the crystal structure of Li3AuS2. For LiAuS: space group Fddd, a 8.9252(15), b 8.9686(15), c 11.2062(19) .ANG., Z = 16. For Li3AuS2: space group Ibam, a 5.763(1), b 11.281(2), c 6.276(1) .ANG., Z = 4. In both structures, short interactions exist between linear two-coordinated Au+ cations.

IT **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)

(for prepn. of lithium gold sulfides LiAuS and Li3AuS2 by reactive flux technique)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

IT **214918-22-6P**, Gold lithium sulfide (AuLiS)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. by reactive flux technique and cor. crystal structure of)
RN 214918-22-6 HCA
CN Lithium gold sulfide (AuLiS) (9CI) (CA INDEX NAME)

Au—S—Li

IT **333392-85-1P**, Gold lithium sulfide (AuLi3S2)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. by reactive flux technique and crystal structure of)
RN 333392-85-1 HCA
CN Gold lithium sulfide (AuLi3S2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	2	7704-34-9
Au	1	7440-57-5
Li	3	7439-93-2

CC 78-5 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75
IT 7439-93-2, Lithium, reactions 7440-57-5, Gold, reactions
7704-34-9, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(for prepn. of lithium gold sulfides LiAuS and Li3AuS2 by reactive flux technique)
IT **214918-22-6P**, Gold lithium sulfide (AuLiS)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. by reactive flux technique and cor. crystal structure of)
IT **333392-85-1P**, Gold lithium sulfide (AuLi3S2)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. by reactive flux technique and crystal structure of)

L39 ANSWER 2 OF 5 HCA COPYRIGHT 2003 ACS
129:325222 Flux Synthesis of LiAuS and NaAuS: "Chicken-Wire-Like" Layer Formation by Interweaving of (AuS)nn- Threads. Comparison with .alpha.-HgS and AAuS (A = K, Rb). Axtell, Enos A., III; Liao,

Ju-Hsiou; Kanatzidis, Mercouri G. (Department of Chemistry and Center for Fundamental Materials Research, Michigan State University, East Lansing, MI, 48824-1322, USA). Inorganic Chemistry, 37(21), 5583-5587 (English) 1998. CODEN: INOCAJ. ISSN: 0020-1669. Publisher: American Chemical Society.

AB From the reaction of Au with alkali metal polysulfide liqs., LiAuS and NaAuS were discovered. Orange crystals of LiAuS crystallize in the monoclinic space group C2/c, with a 8.994(2), b 8.956(2), c 7.201(3) .ANG., .beta. 128.68(1).degree., and Z = 8. Light-yellow planks of NaAuS crystallize in the orthorhombic space group Ccca, with a 14.658(5), b 21.043(7), c 7.118(4) .ANG., and Z = 32. Both compds. contain infinite 1-dimensional (AuS)nn- chains, featuring alternating sulfide anions and linear coordinated Au centers. In LiAuS, the chains are zigzag and fully extended and they pack in two mutually perpendicular sets. In NaAuS, the same chains coil in an unusual fashion so that they become interwoven to form layers reminiscent of chicken-wire. This novel coiling mode allows Au-Au contacts to form, which help to stabilize the structure. The structural relations between LiAuS, NaAuS, Na7Au5S6, AAuQ (A = K, Rb, Cs; Q = S, Se), and .alpha.-HgS are explored.

IT **214918-22-6P**, Lithium gold sulfide (AuLiS)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(flux prepn. and crystal structure)

RN 214918-22-6 HCA
CN Lithium gold sulfide (AuLiS) (9CI) (CA INDEX NAME)

Au—S—Li

IT **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(for flux prepn. of lithium gold sulfide (LiAuS) and sodium gold sulfide (NaAuS))

RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

CC 78-6 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75

IT **214918-22-6P**, Lithium gold sulfide (AuLiS) 214918-23-7P, Gold sodium sulfide (AuNaS)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(flux prepn. and crystal structure)

IT 7440-57-5, Gold, reactions **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(for flux prepn. of lithium gold sulfide (LiAuS) and sodium gold sulfide (NaAuS))

L39 ANSWER 3 OF 5 HCA COPYRIGHT 2003 ACS
109:46902 Electric conductor from an inorganic polymeric compound containing a transition metal and its preparation. Nakamura, Akira; Tatsumi, Kazuyuki (Idemitsu Petrochemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62260860 A2 19871113 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-103194 19860507.

AB The title compd. is comprises MSaCbHc (M = Nb, Zn, V, Ta, or Ti; a = 2-4; b = 0-0.2; and c = 0-5). A method for prepg. the compd. involves thermal decompn. of A(MxSy) (M = Nb, Zr, V, Ta, or Ti; A = Li, tetraphenylphosphonium, tetraphenylarsonium, or tetraalkylammonium; and x, y = pos. no). The method is simple and preps. the title compd. having a desired elec. cond. A compd. having a cond. of 1 (.OMEGA.-cm)-1 and prepd. by thermal decompn. of Li(Nb3S12) prepd. from Li2S5 and NbCl5.

IT **51680-57-0P 61673-68-5P 74245-06-0P**
114105-13-4P, Lithium niobium polysulfide (Li(Nb3S12))
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and thermal decompn. of)

RN 51680-57-0 HCA
CN Lithium zirconium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Zr	x	7440-67-7
Li	x	7439-93-2

RN 61673-68-5 HCA
CN Lithium tantalum sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ta	x	7440-25-7
Li	x	7439-93-2

RN 74245-06-0 HCA
CN Lithium vanadium sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
V	x	7440-62-2
Li	x	7439-93-2

RN 114105-13-4 HCA
CN Lithium niobium sulfide (LiNb3S12) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
S	12	7704-34-9
Nb	3	7440-03-1
Li	1	7439-93-2

IT **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(reaction of, with lithium, in prepn. of polysulfides)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

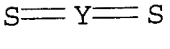
IC ICM C08L101-00
ICS C08G079-06
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 37
IT 18198-39-5P **51680-57-0P 61673-68-5P**
74245-06-0P 114105-13-4P, Lithium niobium polysulfide (Li(Nb3S12))
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and thermal decompn. of)
IT **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(reaction of, with lithium, in prepn. of polysulfides)

L39 ANSWER 4 OF 5 HCA COPYRIGHT 2003 ACS
107:210860 Synthesis, order-disorder transition and magnetic properties of LiLnS2, LiLnSe2, NaLnS2 and NaLnSe2 (Ln = lanthanides). Ohtani, Tsukio; Honjo, Hideaki; Wada, Hironobu (Lab. Solid State Chem., Okayama Univ. Sci., Okayama, 700, Japan). Materials Research Bulletin, 22(6), 829-40 (English) 1987. CODEN: MRBUAC. ISSN: 0025-5408.
AB LiLnS2, LiLnSe2, NaLnS2, and NaLnSe2 (Ln = La, Ce, Nd, Sm, Gd, Tb, Dy, Ho, Er, or Y) were prepd. by heating mixts. of elements. Measurements showed 1st order transitions >600.degree. in LiLnS2 (Ln = Dy, Ho, Er, Y), LiLnSe2 (Ln = Gd-Er), NaNdS2, and NaCeSe2, which are considered order-disorder transitions between a NaCl and an .alpha.-NaFeO2 structure. This is consistent with x-ray diffraction measurements. Magnetic susceptibility measurements revealed that all the lanthanides ions are trivalent.
IT **110657-06-2P**, Lanthanum lithium disulfide
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure type of)
RN 110657-06-2 HCA
CN Lanthanum lithium sulfide (LaLiS2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

S	2	7704-34-9
Li	1	7439-93-2
La	1	7439-91-0

IT **12162-98-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn., crystal structure, magnetic susceptibility and order-disorder transition of)
RN 12162-98-0 HCA
CN Yttrate(1-), dithioxo-, lithium (9CI) (CA INDEX NAME)



IT **7704-34-9**, Sulfur, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(thermal reactions of, with rare earth and lithium or sodium)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

CC 78-7 (Inorganic Chemicals and Reactions)
IT **110657-06-2P**, Lanthanum lithium disulfide 110657-07-3P, Cerium lithium disulfide 110657-08-4P, Lanthanum lithium diselenide 110657-09-5P, Cerium lithium diselenide
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure type of)
IT 12159-26-1P, Dysprosium lithium disulfide 12159-50-1P, Erbium lithium disulfide **12162-98-0P** 37240-64-5P
110657-02-8P, Lithium terbium diselenide 110657-03-9P, Lithium yttrium diselenide 110657-04-0P, Dysprosium lithium diselenide
110681-18-0P, Gadolinium lithium diselenide 111200-80-7P, Holmium lithium diselenide
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn., crystal structure, magnetic susceptibility and order-disorder transition of)
IT **7704-34-9**, Sulfur, reactions 7782-49-2, Selenium, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(thermal reactions of, with rare earth and lithium or sodium)

L39 ANSWER 5 OF 5 HCA COPYRIGHT 2003 ACS
105:201914 On several new ternary molybdenum sulfide phases M3.4Mo15S19 (M = vacancy, lithium, sodium, potassium, zinc, cadmium, tin and thallium). Tarascon, J. M.; Hull, G. W. (Bell Commun. Res., Inc.,

Murray Hill, NJ, 07974, USA). Materials Research Bulletin, 21(7), 859-69 (English) 1986. CODEN: MRBUAC. ISSN: 0025-5408.

AB In3.4Mo15S19 (I) was prepd. and is isostructural with In3.3Mo15Se19. The In atoms were removed from I by oxidn. with HCl without disturbing the Mo chalcogenide network, resulting in Mo15S19. Furthermore, this phase, with an open framework structure turns out to be an interesting system for intercalation studies. Mo15S19 can undergo topotactic redox reactions with Li or Na, resulting in Li8Mo15S19 and Na8Mo15S19, resp. These two phases are stable at room temp. in the absence of air. MxMo15S19 (M = Zn, Cd, Sn and Tl) were also prepd. at low temps. by diffusion of M into the Mo15S19 matrix. These phases are stable at room temp. in air. None of the above materials exhibit supercond. .gtoreq.0.5 K.

IT **105109-95-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 105109-95-3 HCA
CN Lithium molybdenum sulfide (Li8Mo15S19) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	19	7704-34-9
Mo	15	7439-98-7
Li	8	7439-93-2

IT **7704-34-9**, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(reaction of, with indium sulfide and hydrogen-reduced molybdenum)
RN 7704-34-9 HCA
CN Sulfur (8CI, 9CI) (CA INDEX NAME)

S

CC 78-6 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 75
IT 57485-07-1P 105109-64-6P 105109-78-2P 105109-79-3P
105109-95-3P 105109-96-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT **7704-34-9**, reactions
RL: **RCT (Reactant)**; RACT (Reactant or reagent)
(reaction of, with indium sulfide and hydrogen-reduced molybdenum)